

lots and also in the case of normalizing small lots and leased lands and other special arrangements, the average contribution ratio should be calculated with the areas corresponding to them being subtracted from the total accumulated area of the original lots and re-plot respectively.

c. preparation of data for land evaluation

- . Street value maps before and after the development.
- . Total land value index of project site, unit and total land value index of each lot before the development.
- . Since utility increase ratio is to be a ratio of average land values after the development to those before the development, the total and unit land value of both causes should be calculated using the same method.

$$E = A(1-d), \quad y = \frac{e_o}{a_o}$$

Unit land value index before the development	-----	a <sub>o</sub>
Unit land value index after the development	-----	e <sub>o</sub>
Total land value before the development	-----	A <sub>ao</sub>
Total land value after the development	-----	E <sub>eo</sub>
Utility increase ratio	-----	y

5.5.2 Putting lots into block

Lots with estimate area and designed shape are to be put in blocks for re-plotting design as follows :-

a. Putting lots into block

- . First, the areas covering original lots to be accommodated into each block after the development shall be estimated. The average contribution ratio of each block can be calculated and their balance over blocks examined.
- . With the balance of the contribution ratio over blocks, the location and shape of each re-plot in the block shall be examined and tentatively determined.
- . With the location and shape of re-plot being tentatively determined, the area of each re-plot can be calculated and re-plotted into the block. In this case overlapping or gaps between re-plots may take place depending on such factors as the existing conditions of original lot prior the development.
- . The contribution area, shape (frontage, depth, figure) shall be adjusted and modified to eliminate the over-lap and gaps. This modification should be carried out to the extent that balance among re-plots is maintained.

- . When the modification is insufficient due to the limitations required by the principle of correspondence, the area covering original lots for re-plotting into the block shall be re-examined and the procedure of putting lots into block as stated above shall be repeated based on the revised covering area.
- . On the completion of all re-plotting, the balance should be checked over the whole project site. If an unreasonable re-plot is discovered, re-plotting design must be re-examined.
- . Through repeated re-plot designing, 2 or 3 alternatives of the re-plotting plan shall be identified and all necessary data and information such as contribution ratio, land value index of lot, etc. recorded.
- . The best alternative shall be selected for the final re-plotting plan.

**b. Re-plotting design map and record**

In order to make clear the combination of original lot and re-plot, re-plotting records shall be prepared.

- . Street number, lot number and number of lease hold shall be well arranged on the re-plotting design map with reference numbers identical to those on the existing topographical map.
- . The lots which are poled or divided through re-plotting design shall be marked with (1), (2), (3) or a, b, c respectively.
- . The re-plotting records must cover all the land in the order of district, block and street number, and the combination of re-plot.
- . Matters which were specifically attended to in the process of re-plotting and any important information on the design must be recorded.

**c. Documentation of re-plotting design**

On the completion of the draft of the re-plotting a plan document of re-plotting design must be prepared including the location, shape of lots to be able to make a comparison between the original lots prior to the development and the re-plots after the development.

- . The calculation table of re-plotting design
- . The map of re-plotting design



## APPENDIX 5

### Standard for Re-plotting Design

#### 1. The purpose of this standard

The purpose of this standard is to establish the rules and standards on re-plotting design for the land readjustment project being implemented by ---- in compliance with the stipulation of article 3 in land readjustment law.

#### 2. Re-plotting Design

Re-plotting design is defined as the process of determining the location, area and shape of re-plot in accordance with this standard so that it conforms to the improvement plan of public facilities and site development which are established by law and the action plan.

#### 3. Lot

Lot is meant to be both lot existing prior to the development and re-plot after the development. When there exist rights of utilizing and yielding benefits from the lots, lots are meant the parts of lots to which the rights are entailed.

#### 4. Lot prior to the development

Re-plotting design should be based on the existing condition of lots as of the day of promulgation of the official decision of the action plan. Changes in any lot's condition caused by the factors not being attributed to the land readjustment shall be considered in the course of the re-plotting design.

#### 5. The area of lot prior to the development

The areas of lots prior the development which are to be the basis for re-plotting design shall be determined in accordance with the stipulation of the implementation ordinance.

#### 6. Combination of original lots and re-plots

- ① One re-plot shall be placed for one original lot. In the case of a site which is divided into two or more lots, one re-plot shall be placed for one original lot in consideration of locational relationship between the lots.
- ② Where one of 2 or more lots which all belong to one land holder is too small to be re-plotted it shall be re-plotted either next to or in connection with other re-plots of the land holder.

- ③ Where several lots are adjacent to one another, with no legal right except registered rights of land holding, they can be aggregated into one re-plot.
- ④ Where the original lot is too large to be re-plotted into one lot, it can be divided into plural lots.

#### 7. Method of re-plotting

- ① Evaluation re-plotting calculation method applies to the re-plotting design.
- ② Evaluation of lot being used in the above method is subject to the standard for land evaluation being set apart.

#### 8. Location of re-plot

- ① In the re-plotting design, re-plots must be designated to match the original lot in such terms as location, soil condition, water supply, land use and environment.
- ② Lots where land use is subject to approval or permission of the authority being stipulated in law or ordinance shall be re-plotted in consideration of necessary conditions for the approval or permission.

#### 9. Area of re-plot

- ① The area of re-plot shall be calculated as follows :-

$$Ei = \frac{Ai \times ai \times (a-d) \times y}{ei}$$

- Ai : The area of original lot before the development
- ai : Unit land value index of the original lot
- Ei : The area of re-plot after the development
- ei : Unit land value index of the re-plot
- d : Average contribution ratio
- y : Average utility increase ratio

- ② The area of lot which is subject to special arrangements or in need of continuation of land use shall be determined in consideration of such factors as land use conditions and others.

#### 10. Shape of Re-plot

- ① The standard shape of re-plot shall be a rectangle.
- ② The frontage length of a re-plot shall be determined in consideration of land use condition of lot before and after the development.

- ③ Re-plot must face street and be at a right angle to it in principle.

11. Arrangement stipulated in the article of law

Re-plot shall not be designed at the request of or on agreement with land owners prior to the development.

12. Arrangement stipulated in the article of law

Arrangement for appropriate size of lot should be established on the agreement of the "land readjustment council"

13. Arrangement stipulated in the article of the law

- ① Lots used for facilities such as railway, air and sea ports, hospitals, being listed for special consideration in the article of law shall be re-plotted in consideration of public/social interests and functions of the lots.
- ② The land needed for public facilities among the above list in the article of law, which shall be newly constructed mainly for the convenience of people residing in the project area are designated as lots for such facilities as above instead of re-plot. However the lots are viewed as re-plot in the re-plotting plan.
- ③ Re-plot shall not be allotted for the lots of the following list of facilities which shall be abolished because of the construction of new facilities.
  - i. Lots being used for streets qualified under the law of street.
  - ii. Lots being classified as public land in the registration record book, which are used for public land in reality.
  - iii. Other lots being used for public traffic as follows:-
    - a. Lots for streets which were constructed or paved by the local government.
    - b. Lots which are designed as land for street under the building code.

14. Lots for public services

The original lots which are acquired for improvement of public facilities, the plans of which are formulated and established in the action plan, and flats construction being implemented by public authority shall be re-plotted in conformity with the development plan for these facilities.

#### 15. Apartment house district and collective farm land area

- ① Re-plotting in an apartment house district shall be designed in consideration of both location of the original lots prior to the development and the location plan of buildings after the development.
- ② Re-plotting in a collective farm land area shall be designed in consideration of both the location of lot and the condition of agricultural land use prior to the development and farm land development plan after the development.

#### 16. Reserved land

Reserved land shall be designated on the lots which are needed for public service facilities established in the action plan, flats development by public authority and proposed facilities servicing to the people living in the project site. Any remaining reserved land, shall be designated in conformity with its purpose in so as far as re-plotting is not hindered.

#### 17. Others

Other aspects of re-plotting design which are not prescribed in this standard shall be established by the implementing agency in consultation with the land readjustment council.

## APPENDIX 6

### GUIDELINE FOR RE-PLOTTING DESIGN

Re-plotting design for the ---- land readjustment project to be implemented by ---- Government under the articles of the land readjustment law is subject to this guideline.

#### Preparatory work for re-plotting design

Data and materials being used as the basis of the re-plotting design should be prepared as follows :-

##### 1) Basic Reference Data for Design

Basic reference data are to be prepared in the form of a table as shown in Format table -1.

##### 2) Individual lot data

Individual lot data are to be prepared in the form of table as shown in Format table -2.

##### 3) Working Map (1/500)

Boundary of planned roads, area of lots, unit land value index, standard re-plotting land value index are all recorded on the existing land map, which is very convenient for re-plotting design.

##### 4) Existing topo Map (1/500)

Existing buildings on the topography map are coloured in accordance with building classification.

The site and buildings which require special consideration in re-plotting should clearly marked on the map.

##### 5) Block land value map

Street value, block area, block land value index and its unit index are all recorded on the block map (design map).

#### Method of re-plotting design

1) Location and shape of re-plotting of each existing lot are considered and tentatively determined on the design map.

2) The area of re-plotting, which is roughly equivalent to the estimated 'Standard Re-Plotting Land Value' (Pi in Table 2) is tentatively determined on the location and with the shape of lot assumed above.

In this case it may be inevitable that overlapping of lots and blank space between lots takes place (this re-plotting is only tentative).



- 3) Proper re-plotting is achieved through necessary modification and adjustment of the tentative re-plotting.
- 4) The area of re-plotting should be calculated as shown in Format table -3.

Tentative determination of re-plotting location and shape of site

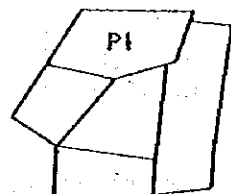
(1) Standards

Re-plotting location and shape of site should be tentatively determined, according to the standards which are established for location, area, shape, length of frontage boundary of site and combination of re-plotting sites and in consideration of the following factors :-

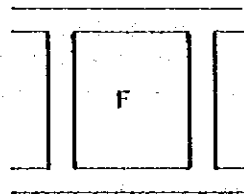
- 1) Existing land use of lots with special public facility services such as corner lot, lots being sided with 2-4 sections of streets and others.
- 2) Existing land use of lots with peculiar characteristics in terms of geology, location and utilization of water.
- 3) The location of lots being used for cultural facilities, if any.
- 4) The location of lots which are commonly considered not to be moved, if any, in the project site.
- 5) The order of transference of the existing buildings and other structures.
- 6) Change in frontage length of lots prior to the project and after the project to be balanced over the blocks in the project site.
- 7) Balance between block land value index and accumulated standard Re-plotting land value index of lots to be accommodated in the block.

(2) Balance between block land value index and accumulated standard re-plotting land value index of lot.

Percentage of difference between block land value index and accumulated standard re-plotting land value index in the block to the block land value index should not exceed 5%.



$$\frac{\sum PI - F}{F} \leq 5\%$$



This is to attain balanced re-plotting all over the blocks.

(3) Table of tentative re-plotting by block and tentative re-plotting location map.

In order to check the balance of tentative re-plotting by block, 1) a table of tentative re-plotting by block (Table -4) and maps showing location and boundary of existing lots to be re-plotted (or accommodated) into each block should be made. The re-plotting location map can be produced in such a way that the lots and their parts on the existing land map are classified and differently coloured by block into which they are supposed to be re-plotted/accommodated.

Tentative placement of lots into block

(1) Method

The lots whose re-plotting shapes are determined in terms of their depth and frontage length set up as above shall be putting into blocks shown on the design map in accordance with the rules and standards.

In the case that the blocks in which overlapping and gap between re-plotted lots takes place, are so large that modification is very difficult, lots should be put into block after changing the preliminary determination of re-plotting location and shape of the site.

(2) Frontage length of re-plotting lot

The frontage lengths of lots being re-plotted along the same street in the same block should be set in proportion to the frontage lengths of the lots prior to the execution of the project.

This rule does not apply to the re-plotting lots, whose boundaries are physically limited in the designed blocks and existing lots which are located along sub-standard streets such as trails, culs-de-sac (blind alley) etc. In these cases the frontage of re-plotting lot shall be properly calculated in response to the situations under which the lots lie, taking into consideration such factors as the basic rules stipulated above and balance with the frontage of the other re-plotting lots.

(3) Depth of re-plotting lot

Once the length of frontage of re-plotting lot is determined as above, the depth of re-plotting lot is calculated as follows :-

Depth of re-plotting lot

$$= \frac{\text{Standard re-plotting} / \text{Block unit}}{\text{Land value index} / \text{Land value index}} \times \text{Frontage length of re-plotting lot}$$

$$\left( \text{Table -3} \quad M1 = \frac{P1/e}{1i} \right)$$

#### (4) Preliminary Re-plotting Design Map

The "preliminary re-plotting design map" is produced by entering location, shape, code of re-plotting lots, and number and length of blocks onto the design map showing blocks in the project site after the implementation.

#### (5) The area of preliminary re-plotted lot and re-plotted land value index (Table -3 B1 and B1)

The frontage length multiplied by the depth of lots, which are calculated above is the area of preliminary re-plotted lot. The area of preliminary re-plotted lot multiplied by unit land value index of the lot is re-plotted land value index (B1). Unit land value index should be calculated by means of calculation method of lot value index, which is prescribed in "The Standards on Land Value Calculation Method".

#### Adjustment of re-plotting

##### (1) Method

Adjustment of re-plotting must be made on such lots as follows :-

- 1) Re-plotting lots whose contribution ratio is considerably above the ceiling agreed upon. (The high contribution ratio should be reduced)
- 2) Re-plotted lots with great disparity between standard re-plotting land value index and re-plotted land value index. (The disparity should be lessened). Based on these adjustments, modification shall be made to eliminate the overlapping and gaps between lots found in the tentative re-plotting design.

##### (2) Adjustment of re-plotting to reduce the contribution ratio

The area of re-plotted lot with excessive contribution ratio shall be adjusted by increasing depth instead of frontage length of the lots.

##### (3) Adjustment of re-plotting to lessen the disparity between standard re-plotting land value index and re-plotted land value index

Re-plotted land value index should be approximated to standard re-plotting land value index by means of increasing or decreasing the depth instead of the frontage length of the lots.

##### (4) Elimination of overlapping and gaps

This should be done in such a way as to give least effect to the length of frontages of lots in observance of such rules as follows :-

- 1) Rules stipulated on re-plotting.

- 2) Percentage of gap between standard re-plotting land value index and re-plotted land value index over standard re-plotting land value index should be no more than 5 percent.

$$\left( \text{Table -3 } \frac{B_i'}{P_i} < 5\% \right)$$

- (5) Map of lots being put in blocks

Tentative re-plotting design map shall become "map of lots being put into blocks" with the boundaries of the lots colored red, after the elimination of overlapping and gaps.

- (6) Adjusted area of re-plotted lots and adjusted re-plotted land value index

(Table -3  $E_i$  and  $B_i$ )

Adjusted area of re-plotted lots and adjusted re-plotted land value index shall be measured on the basis of "the map of lots being put in blocks", which is produced above. Unit land value index ( $B_i$ ) should be calculated by means of calculation method of lot value index.

#### Finalization of Re-plotting Design

- (1) Lots Map

In order to thoroughly examine the appropriateness of the re-plotting, all necessary informations such as land value index and its difference prior to and after the execution of the project, deviation ratio of land value index between existing and re-plotted lot. (Table -3  $B_i - P_i$ ) and contribution ratio of each lot should be written down on a copy of "the map of lots being put in blocks prepared before".

- (2) Finalization of re-plotting

The re-plotting of lots which require correction through the examination on the lots map should be modified to finalize the re-plotting design.

- (3) Document for re-plotting design

Re-plotting design document consists of the calculation table of re-plotting design and the re-plotting design map. The calculation table must be prepared by district following the format as shown in table -5.

Re-plotting design map is a duplicate of the original block map with block number, boundary and code of re-plot being recorded in the same form with the existing land map.

TABLE - 1 Basic Reference Data for Replotting Design

District Name (                    )		Block No. (                    )		Block Area (                    m <sup>2</sup> )		Remarks
		Before the Replotting		After Replotting		
		Datum Area	Total Index	Replotting Area	Total Index	
1. Sites not to be replotted		m <sup>2</sup> 305.90	Points 58,369	m <sup>2</sup> 0.00		
2. Sites with special arrangement in replotting		556.30	417,225	556.30	417,225	
3. ....						
4. Regular site (other than 1.2.3		(A) 24,776.30	(B) 18,908,624	(E) 18,417.70	(F) 19,135,990	
TOTAL		A 25,640.50	B 19,384,218	E 18,974.00	F 19,553,215	
1. Average Contribution Ratio over all the sites		$d = 1 - \frac{E}{A} = 1 - \frac{18,974.00}{25,640.50} = 0.260$		$(d) = 1 - \frac{(E)}{(A)} = 1 - \frac{18,417.80}{24,778.30} = 0.257$		
3. Average Unit Land Index over all the sites		$Q_0 = \frac{B}{A} = \frac{19,284,218.00}{25,640.50} = 756$		$(Q_0) = \frac{(B)}{(A)} = \frac{18,908,624.00}{24,778.30} = 763$		
5. Average Unit Land Index over all the sites replotted		$e_0 = \frac{F}{E} = \frac{19,553,215.00}{18,974.00} = 1.031$		$(e_0) = \frac{(F)}{(E)} = \frac{19,135,990.00}{18,417.70} = 1.039$		
7. Increase Ratio in Land Utility over all the sites replotted (Increase Ratio in Unit Land Index)		$Y = \frac{e_0}{Q_0} = \frac{1.031}{756} = 1.364$		$(Y_0) = \frac{(e_0)}{(Q_0)} = \frac{1.093}{763} = 1.362$		
9. Proportion Ratio over all the sites		$K = \frac{F}{B} = \frac{19,553,215}{19,384,218} = 1.009$		$(K) = \frac{(F)}{(B)} = \frac{19,135,990}{18,908,624} = 1.012$		

TABLE - 2 Individual Lot Data

Lot No.	Lot Area (m <sup>2</sup> )	Unit Land Value Index ( $\frac{\text{Point}}{\text{m}^2}$ )	Lot Land Value Index (Points)	Standard Replotting Land Value Index	Existing Condition of Lot	Environ- ment	Land Use Zoning	Use of Building	Others	Name of Landholder	Remarks
1	A1	a1	B1=A1.O1	P1=M1(K)							

1. Lot area should be "datum area"
2. Unit land value index is to be calculated on Land Value Evaluation Standard.
3. (K) for calculating Standard Replotting Land Value Index is to be drawn for Basic Reference Data for Replotting Design.
4. Existing condition of lot indicates either of building site, unused site, site for stock piling, others. Environment is to be rated 1. good, 2. fair, 3. bad. Use of building is categorized as housing, store/shop, factory, warehouse and others.
5. Others mean factors, if any, to be taken into special consideration.

TABLE - 3 Replotting Calculation Table by Block

Block No. (       )		Block Area (       )		Total Block Land Value Index (       ) Point				Average Contribution Ratio (       ) %							
Existing Lot				Temporary Replotting					Adjusted Replotting				Remarks		
Lot No.	Lot Area	Standard Replotting Land Value Index	Length of Frontage of Lot	Block Unit Land Value Index	Length of Frontage of Replotted Lot	Depth of Lot	Area of Replotted Lot	Replotted Land Value Index	Contribution Ratio	Length of Frontage of Lot	Area of Replotted Lot	Replotted Land Value Index		Deviation Ratio of Land Value Index between Existing and Replotted Lot	Contribution Ratio
i	A <sub>i</sub>	P <sub>i</sub>	L <sub>i</sub>	e	L <sub>i</sub>	$M_i = \frac{P_i}{L_i}$	$E_i = L_i \cdot M_i$	$B_i = E_i \cdot e$	$1 - \frac{E_i}{A_i}$	" L <sub>i</sub>	Z <sub>i</sub>	B <sub>i</sub> = Z <sub>i</sub> · L <sub>i</sub>	$\frac{B_i - P_i}{P_i}$	$1 - \frac{E_i}{A_i}$	

1. Data on lot area (A<sub>1</sub>) and Standard Replotting Land Value Index can be provided from Individual Lot Data List (Table 2).
2. Length of frontage of lot can be reproduced from the existing land map with length of frontage of replotted lot from replotted design map.
3. Block unit land value index (e) can be reproduced from Block Land Value Map.

TABLE - 4 Preliminary Replotting by Block

Block Number	After Development		Before Development		$\frac{(P)}{(F)} - 1$	$1 - \frac{(E)}{(A)}$	Remarks
	Area (E)	Block Land Value Index (F)	Area (A)	Accumulated Standard Land Value Index of Lots to be Replotted into the Block $(P) = \sum P_i$			
	m <sup>2</sup>	unit	m <sup>2</sup>	unit			

In the case of block with special replotting, area and block land value index(F) after development and the area before development should be divided into special part of replotting and the other.



TABLE - 5 Calculation of Replotting Design (Example)

Lots before Development										Replot						Balance in Index		Name of Land or Right Holder
Address	Land Use (Registered or Adjusted)	Lot Area	Unit Land Value Index	Standard Replotting Land Value Index	Legal Right out of Land Holding			Block Number	Code	Land Use	Area	Replotted Land Value Index	Legal Right out of Land Holding		Contribution Ratio	Collection	Gran	
					Classification of Right	Area (Registered or Declared)	Standard Replotting Land Value Index						Area	Replotted Land Value Index				
130-2	Paddy Field	65.01	unit/m <sup>2</sup>	unit	51,580		m <sup>2</sup>	unit	10	4	46.68	51,581	m <sup>2</sup>	unit	unit	unit	unit	
37	Crop Field	621.32		470,548					12	7	519.37	504,911		130.50	116,867			
						Lease	141.51	99,816						90.50	87,785			
						Own	387.59	300,457						298.37	300,459			
38	Crop Field	193.14							12	5	449.31	439,425						
		378.20																



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